Significant Changes and Enhancements to Alaska Aviation Weather Unit (AAWU) Text and Graphics will take place on November 12, 2013

The Alaska Aviation Weather Unit is modernizing forecast operations to bring improvements in services to the aviation community. The changes in AAWU have been slowly evolving over the past few years and a significant jump in service enhancements will take place on November 12, 2013. This document describes these changes in detail.

Area Forecast and AIRMET issuance and update times

One major change is in the issuance times of Area Forecast and AIRMETs along with the addition of scheduled updates. The forecast will still be updated at other times as needed, but non-routine updates should occur less frequently with this new schedule. Table 1 shows the new issuance and update times for the Area Forecasts and AIRMETs.

Table 1. Issuance Times for Area Forecasts and AIRMETs

Local Alaska Time (UTC during AKST, UTC during AKDT)	**Area Forecast Issuance Type**	**AIRMET Issuance Type**
At 1215 am (0915 UTC, 0815 UTC)	**Area Forecast Update** *(valid through 8 AM with outlook valid 8 AM to 2 PM)*	**New AIRMET** *(valid through 615 AM)*
At 415 am (1215 UTC, 1315 UTC)	**New Area Forecast** *(valid through 4 PM with outlook valid 4 pm to 10 PM)*	**AIRMET Update** *(valid through 615 AM)*
At 615 am (1515 UTC, 1415 UTC)	**Area Forecast Update** *(valid through 4 PM with outlook valid 4 pm to 10 PM)*	**New AIRMET** *(valid through1215 PM)*
At 1215 pm (2115 UTC, 2015 UTC)	**New Area Forecast** *(valid through 12 AM with outlook valid 12 am to 6 AM)*	**New AIRMET** *(valid through 615 PM)*
At 615 pm (0315 UTC, 0215UTC)	**Area Forecast Update** *(valid through 12 AM with outlook valid 12 am to 6 AM)*	**New AIRMET** *(valid through 1215 AM)*
At 815 pm (0515 UTC, 0415 UTC)	**New Area Forecast** *(valid through 8 AM with outlook valid 8 AM to 2 PM)*	**AIRMET Update** *(valid through 1215 AM)*

*Table 1. Times for new issuance and updates for both AIRMETs and Area Forecasts in local time, UTC for Alaska Standard Time (*AKST), and UTC for Alaska Daylight Time (**AKDT).*

Icing and Turbulence Graphical Forecasts

Enhancements to the icing and turbulence graphics will occur on November 12. Instead of one icing and one turbulence graphic representing a 6 hour window of time, a series of graphics valid every 3 hours (12 am/pm, 3 am/pm, 6 am/pm, and 9 am/pm Local Alaska Time) will be provided up to 12 hours into the future. In addition, summary graphics representing a composite of the individual graphics expected in the next 12 hours from issuance time will be produced for icing and combined low and high level turbulence. These graphics will be issued and updated with the Area Forecasts shown in Table 1. Like the text products, non-scheduled updates may also occur as needed to assure consistency between text and graphical forecasts. See Table 2 for issuance and update times for the graphical and text products.

Isolated moderate, occasional to continuous moderate, and moderate with isolated severe conditions (icing and turbulence) will be depicted on the graphics (previously isolated moderate conditions were not included on the graphics). Occasional or prevailing severe conditions will continue to be addressed in SIGMETs. Due to frequent complexity of turbulence conditions in active weather, the turbulence graphics will be split into two separate layered graphics. The low level graphic will represent turbulence expected from the surface to 18K feet while the high level graphic will represent turbulence above 18 thousand feet to 45 thousand feet. If a layer of turbulence with a base below 18 thousand feet and a top above 18 thousand feet (turbulence layer forecast crosses 18 thousand feet), the turbulence will be depicted on both the lower and upper level graphics. Non-convective low level wind shear (LLWS) is also included on the low level turbulence graphic when forecast. Figure 1A and 1B show sample icing graphics and Figure 2A, 2B, and 2C show sample turbulence graphics.

IFR/MVFR Graphical Forecast and Surface Map

No changes to the appearance of the IFR/MVFR chart and Surface Map will take place. However, there will be a change to the issuance times. The IFR/MVFR chart and Surface Map will be issued 4 times a day with the new AIRMETs (see Table 1 for times). The Surface Map will be valid for a specific time into the future as shown in Table 2. The IFR/MVFR chart will represent the worst occasional or continuous conditions expected from the initial issuance time to 6 hours into the future. The Surface Map will not be updated after being issued. However, the IFR/MVFR chart will be updated (as needed) with the AIRMETs (see Table 1 for times). See Table 2 for issuance and update times for the graphical and text products.

24-60 Hour Significant Weather Charts

No changes will occur with the appearance 24-60 hour Significant Weather (SigWX) Charts, but changes in issuance times will take place. The SigWx Charts will be issued at 630am and 830pm local Alaska Time. A routine update to the 24 hour Sig Wx Chart valid at 12 UTC will occur at 1230pm. See Table 2 for the issuance and update times for the SigWx Charts.

Table 2. AAWU Text and Graphic Product Update Timeline

Local Alaska Time (UTC during AKST, UTC during AKDT)	**Area Forecast and AIRMETs Issued**	**Graphical Forecasts Issued**
At 1215 am (0915 UTC, 0815 UTC)	○ **New AIRMET** ○ **Area Forecast Update**	○ **Surface Map valid 12UTC** ○ **12 am-6 am IFR/MVFR Graphic** ○ **Icing and Turbulence Graphic Update**
At 415 am (1215 UTC, 1315 UTC)	○ **AIRMET Update** ○ **New Area Forecast**	○ **4 am-4 pm Icing and Turbulence Graphic** ○ **4 am-6 am IFR/MVFR Graphic Update** ○ **Convective Outlook**
At 615 am (1515 UTC, 1415 UTC)	○ **New AIRMET** ○ **Area Forecast Update**	○ **Surface Map valid 18UTC** ○ **6 am-12 pm IFR/MVFR Graphic** ○ **Icing and Turbulence Graphic Update**
At 630 am (1130 UTC, 1030 UTC)		○ **24-60 hour Significant Weather Graphics**
At 1215 pm (2115 UTC, 2015 UTC)	○ **New AIRMET** ○ **New Area Forecast**	○ **Surface Map valid 00UTC** ○ **12PM-6PM IFR/MVFR Graphic** ○ **12PM-12AM Icing and Turbulence Graphic** ○ **Convective Outlook Update**
At 1230 pm (2130 UTC, 2030 UTC)		○ **24 hour, valid 12 UTC Significant Weather Graphic Update**
At 615 pm (0315 UTC, 0215UTC)	○ **New AIRMET** ○ **Area Forecast Update**	○ **Surface Map valid 06UTC** ○ **6 pm-12 am IFR/MVFR Graphic** ○ **Icing and Turbulence Graphic Update**
At 815 pm (0515 UTC, 0415 UTC)	○ **AIRMET Update** ○ **New Area Forecast**	○ **8 pm-12 am IFR/MVFR Graphic Update** ○ **Convective Outlook Update** ○ **8 pm – 8 am Icing and Turbulence Graphic**
At 830 pm (0530 UTC, 0430 UTC)		○ **24-60 hour Significant Weather Graphics**

*Table 2. A time line for the issuance and update times of routine AAWU text and graphical forecasts in local time, UTC for Alaska Standard Time (*AKST), and UTC for Alaska Daylight Time (**AKDT).*

Web Display of Graphical Forecasts

The display of icing and turbulence graphics on AAWU website will change so that these additional times can be displayed. While changes in the issuance times of the IFR/MVFR chart and Surface Map will take place, the display of these graphics will not. For an example display of the graphical products on our web page, see the Icing and Turbulence tabs on http://aawu.arh.noaa.gov/sample.php?tab=2 The 1215PM issuance of products, the actual forecast

images (not samples) will be found through the links on http://aawu.arh.noaa.gov/index.php?tab=2 The icing and turbulence graphics previously produced will no longer be available. Table 3 provides a listing of the links for the new icing and turbulence images.

Table 3. New Icing and Turbulence Graphic filenames on web page	
Graphic Type	**Web Page Link**
Low Level Turbulence individual graphics	http://aawu.arh.noaa.gov/fcstgraphics/turb_low_YYMMDDHH.png
High Level Turbulence individual graphics	http://aawu.arh.noaa.gov/fcstgraphics/turb_high_YYMMDDHH.png
12 Hour Turbulence Summary	http://aawu.arh.noaa.gov/fcstgraphics/turb_summary.png
Icing individual graphics	http://aawu.arh.noaa.gov/fcstgraphics/icing_YYMMDDHH.png
12 Hour Icing Summary	http://aawu.arh.noaa.gov/fcstgraphics/icing_summary.png

- YYMMDDHH represents a two-digit integer for year (YY), month (MM), day (DD), and hour (HH) for the valid time in local Alaska Time.
- Hours used will be 00, 03, 06, 09, 12, 15, 18, and 21.

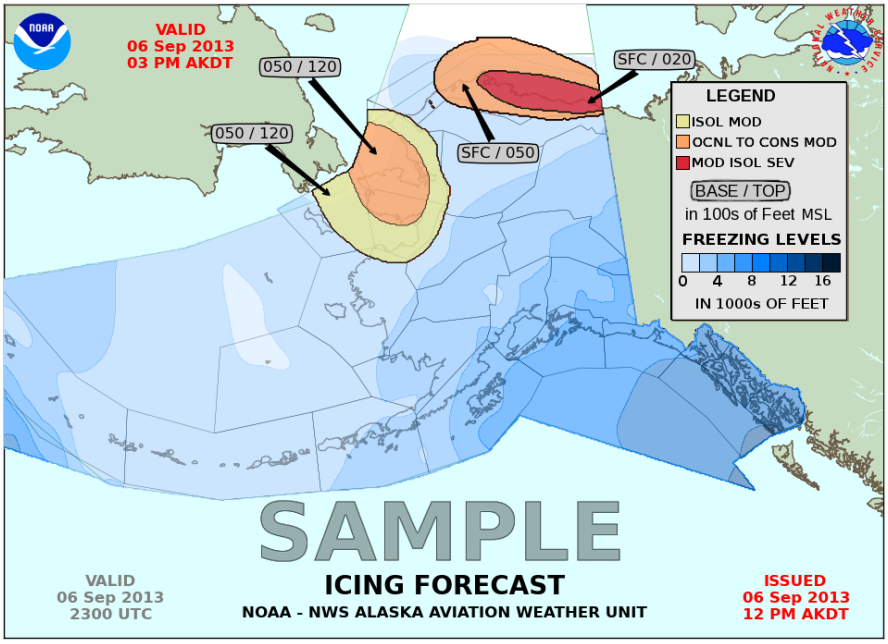

Figure 1A. An example icing graphic valid at 3PM AK Time or 2300 UTC showing isolated moderate or greater icing and freezing levels. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). The base and top of each layer of icing forecast is in Mean Sea Level (MSL) in hundreds of feet and defined with a label and arrow. Freezing levels, shown in thousands of feet are shaded in 2000 foot increments MSL with shading becoming darker with height as defined in the legend.

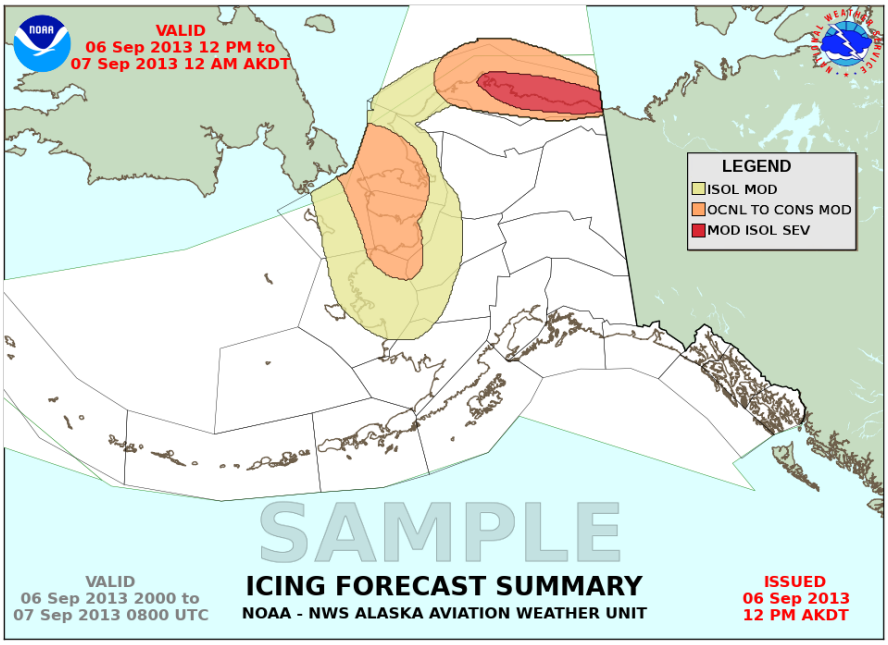

Figure 1B. An example 12 hour summary icing graphic valid from 12pm to 12am or from 0300 to 0800 UTC is depicted. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. All icing forecast during the 12 hour period are included Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). Since heights and freezing levels can change over the 12 hour period, the heights and freezing level are only provided on the individual icing graphics and not on the summary graphic.

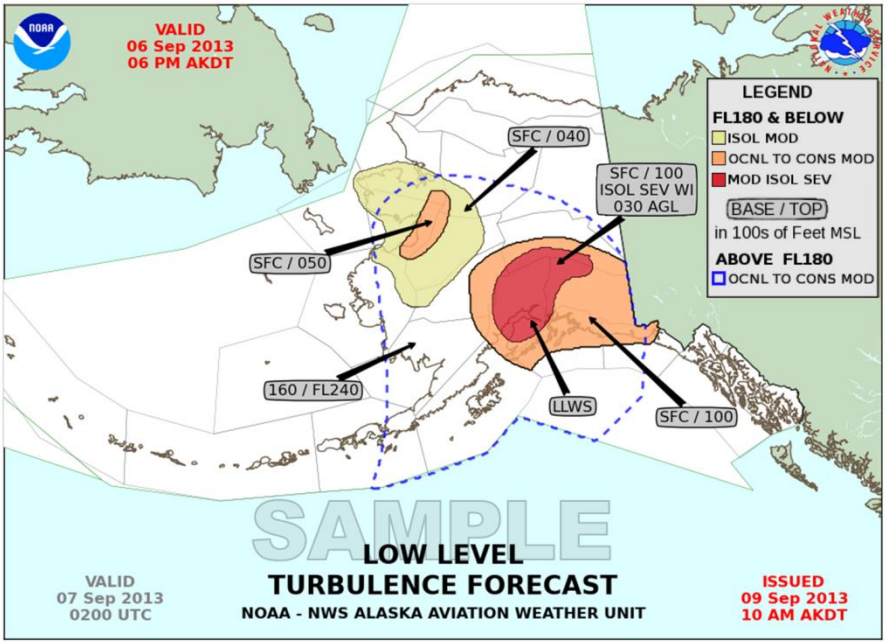

Figure 2A. An example Low Level Turbulence Forecast graphic valid at 6 PM or 02 UTC showing isolated moderate or greater turbulence expected from the surface to 18 thousand feet Mean Sea Level (FL180). The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. Turbulence with a base below FL180 that extends above FL180 is depicted with a blue dashed line. All other turbulence is shaded. Turbulence with a base above FL180 will be included on the High Level Turbulence Forecast graphic only. Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). The base and top of each layer forecast is in Mean Sea Level (MSL) in hundreds of feet and defined with a label and arrow. All heights are in Mean Sea Level except for turbulence within (WI) is above ground level (AGL). Low level wind shear (LLWS) will also be denoted with an arrow indicating the location.

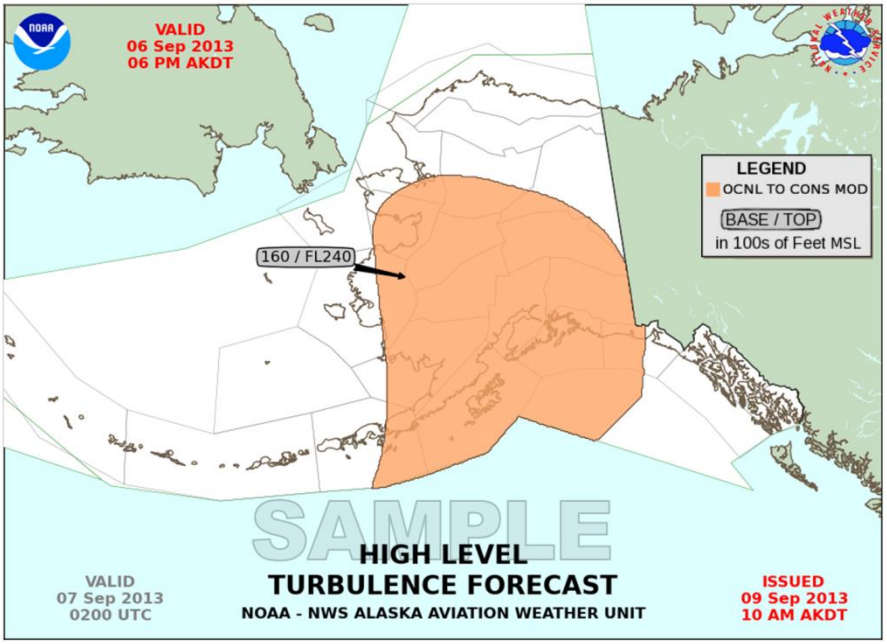

Figure 2B. An example High Level Turbulence Forecast valid for 6 pm or 02 UTC showing occasional (OCNL) to continuous (CONS) moderate turbulence expected that has a base above 18 thousand feet (FL180). The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. The base and top of each layer of turbulence forecast are defined in Mean Sea Level are in hundreds of feet and defined with a label and arrow.

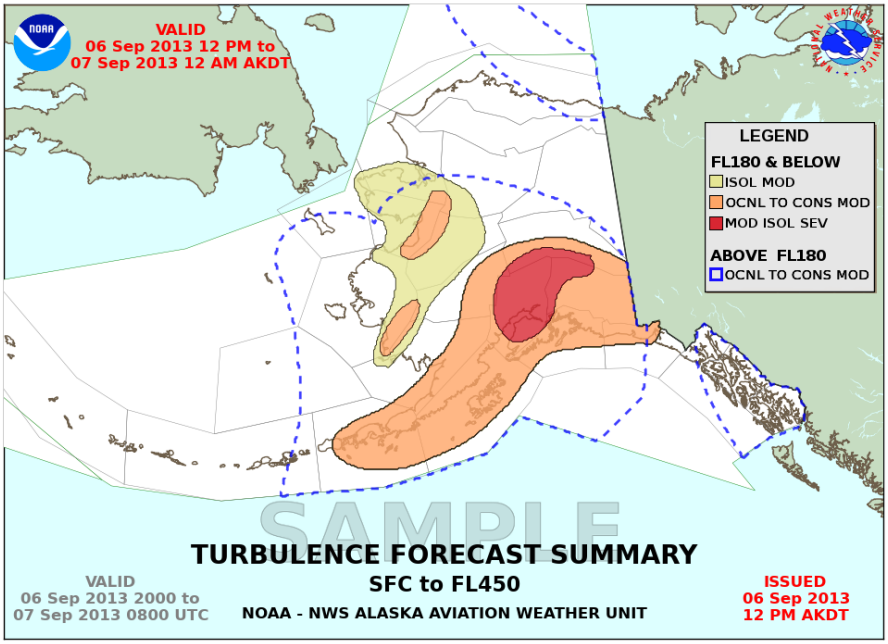

Figure 2C. An example 12 hour summary graphic where low and high level turbulence valid from 12 pm to 12 am or 23 UTC to 08 UTC are depicted. The valid time is shown in the upper left corner in Alaska time and in UTC in the lower left corner. All turbulence forecast during the 12 hour period is included. Isolated (ISOL) moderate (MOD) is shaded yellow, occasional (OCNL) or continuous (CONS) moderate is shaded orange, and red is used for moderate with isolated severe (SEV). Turbulence with a top below 18 thousand feet (FL180) is shaded and occasional moderate turbulence top above FL180 is depicted with a dashed blue line. Since heights can change over the 12 hour period, the heights are not included on the summary graphic.